CLAIMS

1. A gas purifier for purifying gas including contaminants, the gas purifier being characterized by:

an adsorption removal device (B), which includes a regenerable adsorbent (9) for adsorbing contaminants from non-purified air (W') and separates the adsorbed contaminants through a regeneration process, and a gas purification unit (A), which performs gas-liquid contact with a porous film to separate and remove contaminants from the non-purified air (W') into a liquid, are arranged in an air passage (Q).

2. The gas purifier according to claim 1, being characterized in that:

the gas purification unit (A) is arranged upstream to the adsorption removal device (B) and arranged in series with the adsorption removal device.

3. The gas purifier according to claim 1, being characterized in that:

the gas purification unit (A) is arranged downstream to the adsorption removal device (B) and arranged in series with the adsorption removal device.

4. The gas purifier according to any one of claims 1 to 3, being characterized in that:

the gas purification unit (A) is formed to enable passage of some air circulating through the air passage (Q).

5. The gas purifier according to claim 3, characterized in that the adsorption removal device (B) is formed to enable passage of some air circulating through the

air passage (Q).

6. The gas purifier according to any one of claims 1 to 5, being characterized in that:

the adsorption removal device (B) includes a moving means for moving the adsorbent (9) to a purification position (P_1) at which the non-purified air (W') is purified and a regeneration position (P_2) at which the adsorbed contaminants are separated, and a regenerating means for separating contaminants from the adsorbent (9) at the regeneration position (P_2).

7. The gas purifier according to claim 6, being characterized in that:

the adsorbent is formed by a honeycomb rotor made of a hydrophobic zeolite, and the moving means is formed by a motor (10) for rotating and driving the honeycomb rotor (9).

8. The gas purifier according to any one of claims 1 to 7, being characterized in that:

the adsorbent (9) uses some of purified air (W) obtained by passage through the adsorbent as air for the regeneration process, and a passage (16) returns some or all of regenerated discharged air obtained through the regeneration process to an air supply portion of the gas purification unit.

9. The gas purifier according to claim 7 or 8, being characterized by:

an air amount control mechanism for controlling the air amount of cooling air for cooling the honeycomb rotor (9).

10. The gas purifier according to any one of claims 7 to 9, being characterized by:

a sensor (21) for detecting a rotation angle or a rotation speed of the honeycomb rotor (9), wherein the rotation speed of the honeycomb rotor (9) is controlled based on a detection value of the sensor (21).

11. The gas purifier according to claim 10, being characterized by:

an organic substance concentration sensor (22) for detecting the organic substance concentration in the regenerated discharged air of the honeycomb rotor (9), wherein the rotation speed of the honeycomb rotor (9) is controlled based on a detection value of the organic substance concentration sensor (22).

12. The gas purifier according to any one of claims 1 to 11, being characterized in that:

the gas purification unit (A) includes a tank (1) containing pure water and a plurality of pipes (2) of porous films extending in the tank (1).

13. The gas purifier according to any one of claims 1 to 11, being characterized in that:

the gas purification unit (A) is formed by stacking film elements (29) of porous films, wherein pure water contacts the non-purified air (W') through the film elements (29).

14. The gas purifier according to claim 12 or 13, being characterized by:

a temperature control mechanism (7) for controlling the temperature of the pure water.

15. The gas purifier according to any one of claims 12 to 14, being characterized by:

a water regeneration mechanism (42) for regenerating water circulating through the gas purification unit (A).

16. The gas purifier according to any one of claims 12 to 15, being characterized in that:

discharged water of a device (X), which is supplied with the purified air (W) obtained by the gas purifier, is used as the pure water.

17. The gas purifier according to any one of claims 12 to 16, being characterized by:

a pure water circulating means (3) for circulating the pure water;

a pure water supplying means (4) for supplying the pure water circulating means (3) with new pure water;

a pure water discharging means (5) for discharging used pure water from the pure water circulating means (3); and

an ion concentration sensor for detecting the ion concentration in the pure water, wherein the circulation amount and the supplied and discharged amount of the pure water is controlled based on a detection value of the ion concentration sensor (23).